

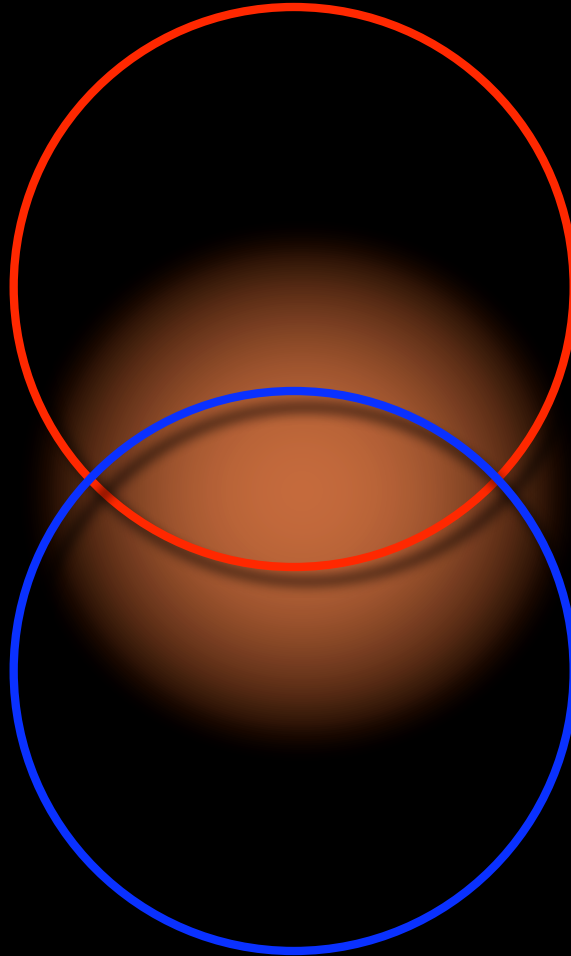


# UNDERSEA HUMAN SYSTEMS INTEGRATION



**SCIENCE**

**SCIENCE**

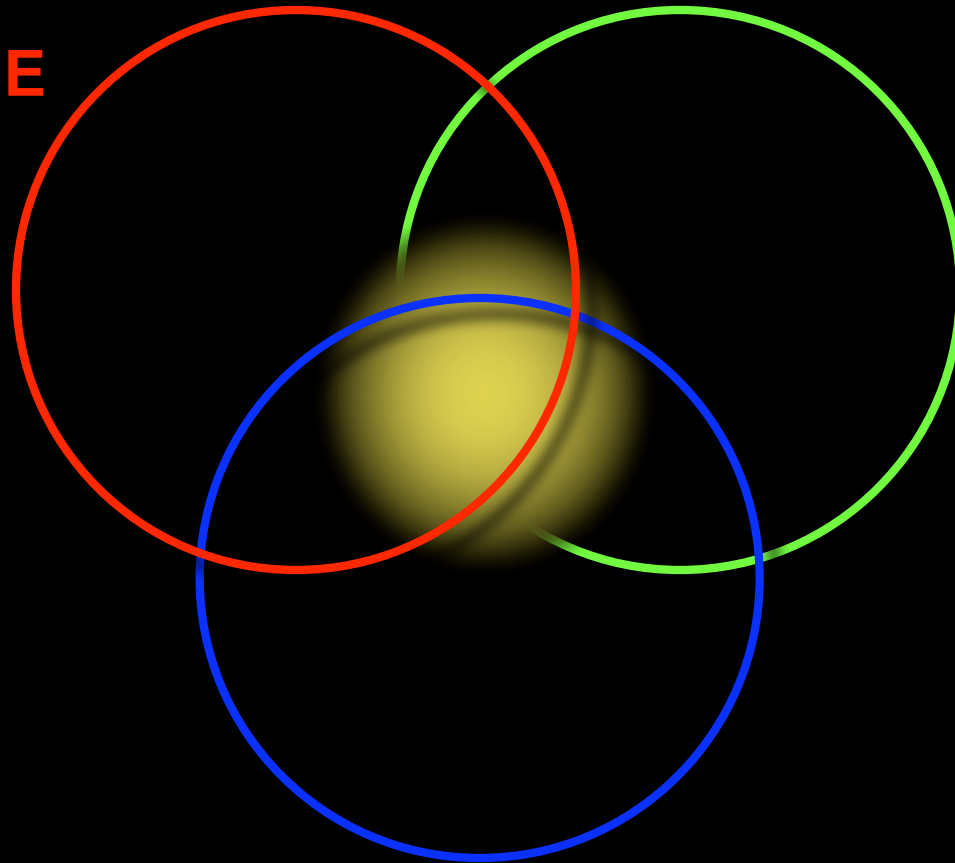


**TECHNOLOGY**

**SCIENCE**

**TACTICS**

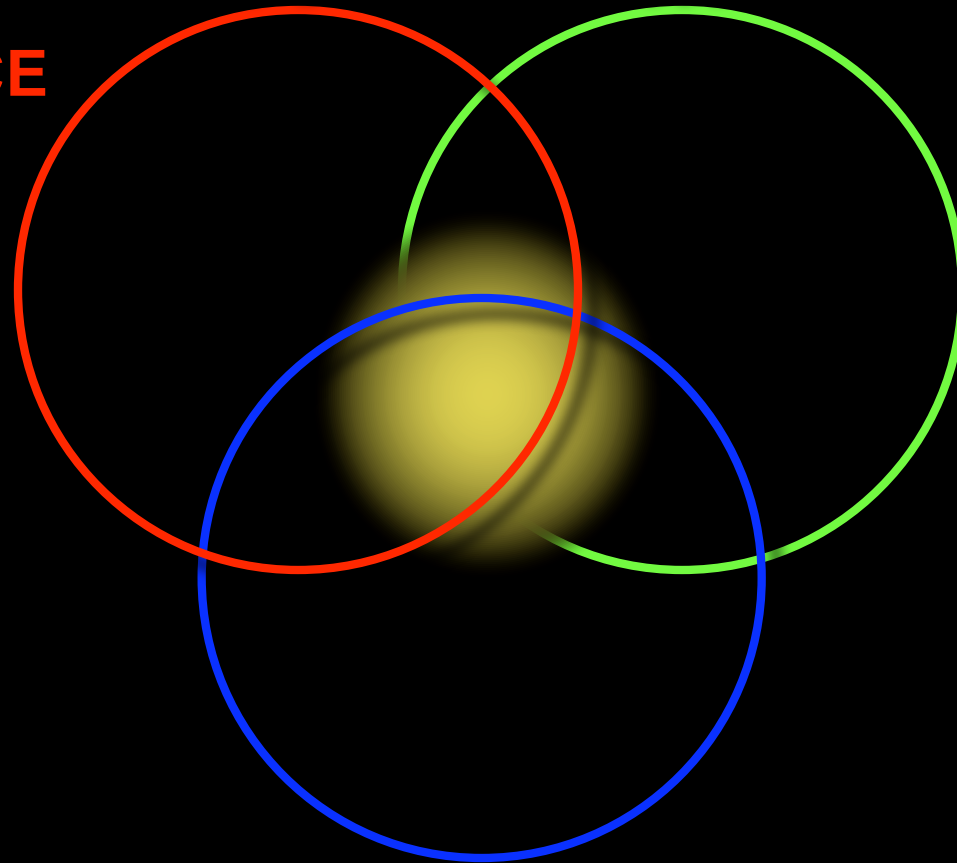
**TECHNOLOGY**



# ***“DEVRON Man”***

**SCIENCE**

**TACTICS**



**TECHNOLOGY**

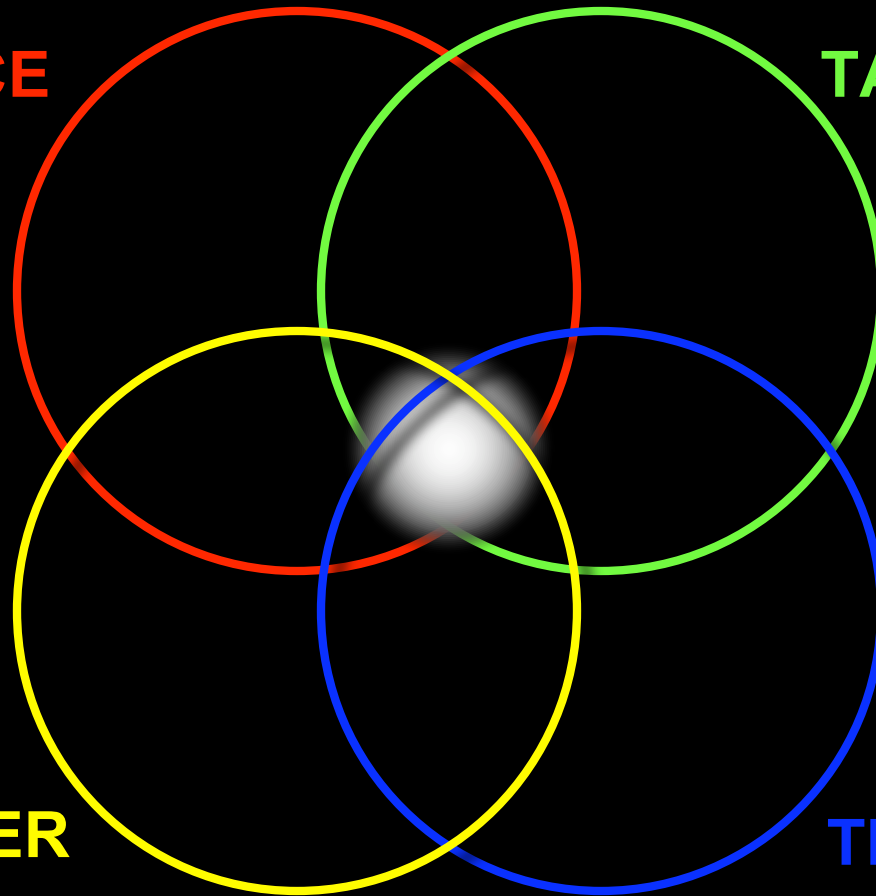
# ***“Behavioral Submarining”***

**SCIENCE**

**TACTICS**

**USER**

**TECHNOLOGY**



# *Cognitive Submariner*

- Excellent pattern detector
  - Data aggregation
    - Time - sift through history, hypothesize the future
    - Space - geographical and spatial patterns
- Mostly, but not always rational
  - This can be measured
- Uses procedures, requires training
  - Can we embed in refreshable technology?
    - Sonar Search, Periscope Employment

# *Window of Opportunity*

- Processing, display, and memory power alleviate “either/or” choices
  - Engineering “vs.” Intuition
  - Training “vs.” Certification
- We understand the user
- Several new “products” with “lead users” in place



# ***“Lead Users”***

- Product innovators
  - Ahead of other users
  - See different things than developers / manufacturers
  - Climate of Open Development
    - LINUX, WIKIPEDIA, ROOMBA
- Dialogue between users and developers is a primary strength of the submarine force
- New products where “lead users” are working
  - ARCI
  - SMTT 3
  - GWOT
  - USS VIRGINIA
  - SSGN

**“Lead Users” from Eric von Hippel’s *Democratizing Innovation***

# ***Session / Speakers***

- Ms. Bonnie Hautamaki, Mr. Ron Small
- Dr. Cynthia Dominguez
- Mr. Peter Henley
- Mr. Michael Linegang
- LtCdr Ryan Ramsey, RN
- CDR Todd Cramer, USN, CO USS Virginia